IN THE DRAWINGS

Formal drawings are herewith provided.

REMARKS

Examiner rejected claims 1-43 under 35 USC 112, second paragraph, as being indefinite.

Part of this indefiniteness is overcome in view of the amendment to the specification. The remainder of this indefiniteness is overcome by the amendments to the claims.

Examiner rejected claims 1-43 under 35 USC 102b as being anticipated by Rosa.

Applicant traverses these rejections for the following reasons.

(a) Exemplary claim 1 includes:

"an inverter circuit ... functional to provide a high-frequency AC voltage between a reference terminal and an inverter output terminal; the hight frequency AC voltage being of a certain magnitude and a certain frequency ... the inverter circuit including a tuned L-C circuit connected ... with the inverter output terminal and the reference terminal; the L-C circuit having a tank capacitor parallel-connected with a tank inductor and being resonant at or near said certain frequency".

This feature is neither described nor suggested by Rosa.

In Rosa, there simply is no tank capacitor parallel-connected with a tank inductor; and there is no parallel-resonant action taking place.

If Examiner were to persist in his position to the contrary, he is requested to show exactly where and/or how Rosa describes an "L-C circuit having a tank capacitor parallel-connected with a tank inductor and being resonant at or near said certain frequency".

(b) Exemplary claim 3 defines "the high-frequency AC voltage" to be "of substantially sinusoidal waveform".

This feature is neither described nor suggested by Rosa.

The waveshape of Rosa's output voltage is shown by the waveform referred-to as Eo in his Fig. 5; which waveform is definitely <u>not</u> sinusoidal.

(c) Exemplary claim 6 includes:

"an inverter circuit ... functional to supply a high-frequency substantially sinusoidal AC output voltage between a first and a second AC output terminal".

This feature is neither described nor suggested by Rosa.

The waveshape of Rosa's output voltage is shown by the waveform referred-to as Eo in his Fig. 5; which waveform is definitely not sinusoidal.

(d) Exemplary claim 8 includes:

"an inverter-type ballasting circuit ... [being functional to cause] ... a substantially sinusoidal AC voltage to exist between the first transistor terminal and one of the DC input terminals".

This feature is neither described nor suggested by Rosa.

There is no indication whatsoever in Rosa to the effect that there exists "a substantially sinusoidal AC voltage" between any pair of terminals, and especially not "between ... [a] ... transistor terminal and one of the DC input terminals".

The waveshape of Rosa's output voltage is shown by the waveform referred-to as Eo in his Fig. 5; which waveform is definitely not sinusoidal.

(e) Exemplary claim 9 includes:

"a parallel-tuned L-C circuit ... connected in circuit between the first transistor terminal and one of the DC output terminals ... [and] ... being naturally resonant at or near the ... frequency of the ... AC voltage".

This feature is neither described nor suggested by Rosa.

In Rosa, there simply is no "parallel-tuned L-C circuit" connected in circuit with anything, let alone one that is "naturally resonant at or near the ... frequency of the ... AC voltage".

(f) Exemplary claim 13 includes:

"an AC source functional to supply an AC power line voltage at a pair of power line terminals" combined with

"rectifying and filtering means connected with the AC power line terminals and functional to provide a substantially constant-magnitude DC supply voltage between a first and a second DC supply terminal".

This feature is neither described nor suggested by Rosa.

In Rosa, there are no two terminals across which exists "a substantially constant-magnitude DC supply voltage".

Examiner also rejected claims 1-43 under 35 USC 102b as being anticipated by Wenrich et al. ("Wenrich").

Applicant traverses these rejections on basis of all the arguments provided in connection with Applicant's traversal of Examier's rejections over Rosa.

More particularly, nowhere does Wenrich describe anything that might suggest that he provides across a pair of terminals anything that might be construed as being the equivalent of "a substantially sinusoidal C voltage".

In fact, as would readily be understood by a person possessing ordinary skill in the particular art pertinent hereto, Wenrich's ballast provides for a square wave output voltage (see his column 1, line 12).

Moreover, there is nothing whatsoever in Wenrich that might even remotely be equated with a "parallel-tuned L-C circuit".

CONCLUDING REMARKS

One of the key characterizing features of the claimed invention relates to having -- in an electronic ballasting means -- a pair of DC terminals supplying a DC voltage to an inverter circuit having a pair of AC output terminals across which is provided a substantially sinusoidal AC voltage while at the same time there exists a substantially sinusoidal AC voltage between one of the output terminals and one of the DC terminals.

Thus, new claims 44-46 merely represent different ways of expressing the same basic invention.

Ole K. Nilssen, Pro Se ~~Applicant~~

RE-AMENDED CLAIMS in Serial No. 08/005,381

1. (Twice Amended) An arrangement comprising:

a source operative to provide, between a first and a second DC terminal, [to provide] a DC voltage of substantially constant magnitude;

an inverter circuit connected with the DC terminals and functional to provide a high-frequency AC voltage between a reference terminal and an inverter output terminal; the high-frequency AC voltage being of a certain magnitude and a certain frequency; the certain frequency being substantially higher than the frequency of the power line voltage on an ordinary electric utility power line; the inverter circuit including a tuned L-C circuit connected in circuit with the inverter output terminal and the reference terminal; the L-C circuit having a tank capacitor parallel-connected with a tank inductor and being resonant at or near said certain frequency; the inverter circuit being further characterized in that: (i) any AC voltage of frequency equal to that of the high-frequency AC voltage existing [that might exist] between the [inverter] reference terminal and the first DC terminal is [being] of negligible magnitude compared with said certain magnitude; and (ii) any AC voltage of frequency equal to that of the high-frequency AC voltage existing [that might exist] between the first and second DC terminals is [being] of magnitude negligible in comparison with said certain magnitude; and

gas discharge lamp means connected in circuit with the L-C circuit.

2. The arrangement of claim 1 wherein the gas discharge lamp means includes a gas discharge lamp series-connected with a current-limiting reactance means.

3. The arrangement of claim 1 wherein the high-frequency AC voltage is of substantially sinusoidal waveform.

4. (Amended) The arrangement of claim 1 where the inverter circuit is additionally characterized by including a first and a second transistor; the first transistor having a first transistor terminal; the second transistor having a second transistor terminal; the first transistor terminal being connected to the second transistor terminal; both transistor terminals being connected in circuit with the inverter output terminal; the inverter circuit being yet further characterized in [such manner] that any voltage present between the inverter output terminal and either one of the two transistor terminals is of negligible magnitude compared with said certain magnitude.

5. The arrangement of claim 1 wherein the inverter circuit includes a first transistor having a first transistor terminal connected with the inverter output terminal in such manner that any voltage existing between the inverter output terminal and the first transistor terminal is of magnitude negligible compared with said certain magnitude; there being substantially zero resistance to the flow of unidirectional current between the inverter output terminal and the first transistor terminal.

cont.

6. (Twice Amended) An arrangement comprising:

a DC source functional to provide a DC supply voltage between a first and a second DC supply terminal;

an inverter circuit connected between the first and second DC supply terminals; the inverter circuit being functional to supply a high-frequency substantially sinusoidal AC output voltage between a first and a second AC output terminal; the high-frequency AC output voltage having a certain magnitude and being of frequency substantially higher than that of the power line voltage on an ordinary electric utility power line; any high-frequency AC voltage that might exist between the second AC output terminal and one of the DC supply terminals being of negligible magnitude compared with said certain magnitude; the inverter circuit being further characterized by including: (i) a first transistor having a first control input terminal, a first output terminal, and a first common terminal; and (ii) a second transistor having a second control input terminal, a second output terminal, and a second common terminal; the second output terminal being connected with the first common terminal, thereby to form a junction terminal; the junction terminal being connected with the first AC output terminal in such manner that: (i) substantially no unidirectional voltage drop can exist between the junction terminal and the first AC output terminal, and (ii) any alternating voltage existing [that might exist]

between the junction terminal and the first AC output terminal is [would be] of negligible magnitude compared with said certain magnitude; a unidirectional voltage existing between the second common terminal and the first output terminal; the average magnitude of the unidirectional magnitude being substantially equal to that of the DC supply voltage; and

a gas discharge lamp connected in circuit with the AC output terminals.

7. (Amended) The arrangement of claim 6 wherein the inverter circuit is further characterized by being connected with the DC supply terminals by way of an inductor means.

8. (Twice Amended) An arrangement comprising:

an AC source functional to supply an AC power line voltage at a pair of AC power line terminals;

rectifying and filtering means connected with the AC power line terminals and functional to provide a DC supply voltage at a pair of DC supply terminals;

cont.

a gas discharge lamp having lamp terminals; and

an inverter-type ballasting circuit having DC input terminals connected with the DC supply terminals and AC output terminals connected with the lamp terminals; the inverter-type ballasting circuit being functional to power the gas discharge lamp and [is] being otherwise characterized by: (i) having a first transistor with a first transistor terminal connected with a second transistor terminal of a second transistor; and (ii) causing a substantially sinusoidal AC voltage to exist between the first transistor terminal and one of the DC input terminals; the frequency of the substantially sinusoidal AC voltage being substantially higher than that of the AC power line voltage.

9. The arrangement of claim 8 wherein a parallel-tuned L-C circuit is connected in circuit between the first transistor terminal and one of the DC input terminals; the parallel-tuned L-C circuit being naturally resonant at or near the fundamental frequency of the substantially sinusoidal AC voltage.

10. (Amended) The arrangement of claim 8 wherein the DC source is additionally characterized by including circuitry operative to cause the absolute magnitude of the DC supply voltage to be [is] larger than the absolute peak magnitude of the AC power line voltage.

11. (Amended) The arrangement of claim 8 wherein the inverter-type ballasting circuit is further characterized in that: (i) the first transistor has a first control input terminal, a first output terminal, and a first common terminal; (ii) the second transistor has a second control input terminal, a second output terminal, and a second common terminal; (iii) the first transistor terminal is the first transistor's common terminal; (iv) the second transistor terminal is the second transistor's output terminal.

12. (Amended) The arrangement of claim 11 wherein the inverter-type ballasting means is yet further characterized in that: (i) a unidirectional voltage exists between the second transistor's common terminal and the first transistor's output terminal; and (ii) the absolute peak magnitude of the unidirectional voltage is larger than the absolute peak magnitude of the AC power line voltage.

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13. (Amended) An arrangement comprising:

an AC source functional to supply an AC power line voltage at a pair of AC power line terminals;

rectifying and filtering means connected with the AC power line terminals and functional to provide a substantially constant-magnitude DC supply voltage between a first and a second DC supply terminal;

an inductor means having a first winding and a second winding;

a lamp load having a pair of load terminals and including a series-combination of a gas discharge lamp and a current-limiting reactance means; and

an inverter circuit having: (i) a pair of AC output terminals connected with the load terminals and across which is provided an AC output voltage; (ii) an auxiliary negative [B-] terminal connected with the first DC supply terminal by way of the first winding; and (iii) an auxiliary positive [B+] terminal connected with the second DC supply terminal by way of the second winding.

14. The arrangement of claim 13 wherein the inverter circuit is further characterized by having a pair of transistors series-connected between the B- terminal and the B+ terminal.

15. (Amended) The arrangement of claim 13 wherein the rectifying and filtering means includes circuitry operative to cause the absolute magnitude of the DC supply voltage to be [is] substantially higher than the absolute peak magnitude of the AC power line voltage.

16. The arrangement of claim 13 wherein the first winding and the second winding are magnetically coupled with each other.

17. The arrangement of claim 13 wherein the AC outout voltage has a substantially sinusoidal waveform.

18. The arrangement of claim 13 wherein the current-limiting reactance means is substantially a capacitive reactance.

19. (Amended) An arrangement comprising:

an AC source functional to supply an AC power line voltage at a pair of AC power line terminals;

rectifying and filtering circuit [means] connected with the AC power line terminals and functional to provide a filtered DC supply voltage between a first and a second DC supply terminal;

an inductor means having a first winding and a second winding;

a lamp load having a pair of load terminals; and

an inverter circuit characterized by: (i) having a pair of AC output terminals connected with the load terminals; (ii) providing a substantially sinusoidal AC output voltage across the AC output terminals; (iii) having an auxiliary negative [B-] terminal connected with the first DC supply terminal by way of the first winding; and (iv) having an auxiliary positive [B+] terminal connected with the second DC supply terminal by way of the second winding.

20. The arrangement of claim 19 wherein a pair of series-connected transistors is connected between the B- terminal and the B+ terminal.

21. (Amended) An arrangement comprising:

a rectifying and filtering circuit characterized by: (i) having a pair of AC power input terminals operable to connect with a pair of AC power line terminals across which exists an ordinary AC power line voltage, and (ii) having sub-circuitry operative, when the AC power input terminals are indeed so connected, [being functional] to provide a DC supply voltage between a pair of DC supply terminals, the absolute magnitude of which DC supply voltage being distinctly higher than the peak absolute magnitude of the AC power line voltage; the rectifying and filtering circuit being further characterized by having [in that] an electrically conductive path [exists] between one of the DC supply terminals and one of the AC power input terminals, which electrically conductive path is characterized by existing irrespective of whether or not the AC power input terminals are connected with the AC power line terminals;

a gas discharge lamp having lamp terminals; and

an inverter-type ballasting circuit having DC input terminals connected with the DC supply terminals and AC output terminals connected with the lamp terminals, thereby to supply a lamp current to the gas discharge lamp; the inverter-type ballasting circuit being further characterized by: (i) including a first transistor having a first transistor terminal connected to a second transistor terminal of a second transistor; (ii) having the two transistors series-connected between a first pair of terminals; and (iii) having a second pair of terminals between which exists a substantially sinusoidal AC voltage of frequency substantially higher than that of the AC power line voltage, one of the second pair of terminals being the first transistor terminal.

22. (Amended) The arrangement of claim 21 wherein the inverter-type ballasting circuit is additionally characterized by including sub-circuitry operative to cause [in that] a unidirectional voltage to exist[s] between the first pair of terminals, the average magnitude of which unidirectional voltage is substantially equal to [the same as] that of the DC supply voltage.

23. The arrangement of claim 21 wherein the inverter-type ballasting circuit is additionally characterized in that the other one of the second pair of terminals is one of the DC supply terminals.

24. (Amended) The arrangement of claim 21 wherein the rectifying and filtering circuit is additionally characterized in that the magnitude of the DC supply voltage is substantially constant.

25. (Amended) The arrangement of claim 21 wherein the rectifying and filtering circuit is additionally characterized [in that, in order to function as described, it has to be] by being powered from ordinary single-phase AC power line voltage.

26. (Amended) An arrangement comprising:

a first sub-circuit: (i) having AC power input terminals connected with an ordinary single-phase AC power line voltage, and (ii) being operative to provide a substantially constant-magnitude DC supply voltage between a first and a second DC supply terminal; the first sub-circuit having [there being] an electrically conductive path between one of the DC supply terminals and one of the AC power input terminals;

a second sub-circuit including an inductor means having a first winding and a second winding;

a lamp load having a pair of load terminals and including a series-combination of a gas discharge lamp and a current-limiting reactance means; and

a third sub-circuit circuit having: (i) a pair of AC output terminals connected with the load terminals and across which is provided an AC output voltage of frequency substantially higher than that of the AC power line voltage; (ii) an auxiliary negative [B-] terminal connected with the first DC supply terminal by way of the first winding; and (iii) an auxiliary positive [B+] terminal connected with the second DC supply terminal by way of the second winding; a unidirectional voltage existing between the auxiliary negative [B-] terminal and the auxiliary positive [B+] terminal; the third sub-circuit also having a first and a second transistor [being] series-connected between the auxiliary negative [B-] terminal and the auxiliary positive [B+] terminal; the two transistors being connected together at a common terminal; the average magnitude of the unidirectional voltage being substantially equal to that of the DC supply voltage.

27. The arrangement of claim 26 wherein the third sub-circuit is additionally characterized by having sufficient structure to cause [in that] a substantially sinusoidal AC voltage to exist [exists] between the common terminal and one of the DC supply terminals.

28. The arrangement of claim 26 wherein the third sub-circuit is additionally characterized in that the first transistor has a first transistor terminal connected to the B- terminal and the second transistor has a second transistor terminal connected to the B+ terminal.

29. (Amended) The arrangement of claim 26 wherein the first sub-circuit is additionally characterized by including sufficient structure to cause [in that] the absolute magnitude of the DC supply voltage to be [is] distinctly higher than the absolute peak magnitude of the AC power line voltage.

30. The arrangement of claim 26 wherein the third sub-circuit is additionally characterized by having a third and a fourth transistor series-connected between the B- terminal and the B+ terminal.

31. (Amended) An arrangement comprising:

a first sub-circuit: (i) having AC power input terminals connectable with an ordinary single-phase AC power line voltage, and (ii) being operative to provide a substantially constant-magnitude DC supply voltage between a first and a second DC supply terminal;

cont. C4

a second sub-circuit including an inductive reactance;

a gas discharge lamp having a pair of lamp terminals; and

a third sub-circuit circuit having: (i) an auxiliary negative [B-] terminal and an auxiliary positive [B+] terminal connected with the first and second DC supply terminals by way of the second sub-circuit; (ii) a unidirectional voltage existing between the auxiliary negative [B-] terminal and the auxiliary positive [B+] terminal; (iii) sufficient structure to cause the average magnitude of the unidirectional voltage to be [being] substantially equal to that of the DC supply voltage; (iv) a first and a second pair of transistors; (v) each transistor pair being series-connected between the auxiliary negative [B-] terminal and the auxiliary positive [B+] terminal; (vi) the first pair of transistors being connected together at a first common terminal; (vii) the second pair of transistors being connected together at a second common terminal; (viii) sufficient structure to cause a substantially sinusoidal AC voltage to exist [existing] between the first and second common terminals; and (ix) a fourth sub-circuit connecting the lamp terminals with the first and second common terminals, thereby to power the gas discharge lamp with an alternating current.

32. (Amended) The arrangement of claim 31 wherein the third sub-circuit is additionally characterized by including structure sufficient to cause [in that] a first AC voltage to exist [exists] between the first common terminal and one of the DC supply terminals; which first AC voltage has a substantially sinusoidal waveform.

33. The arrangement of claim 31 wherein the third sub-circuit is additionally characterized in that it includes a self-oscillating full-bridge inverter.

34. (Amended) An arrangement comprising:

a first sub-circuit: (i) having AC power input terminals connectable with an ordinary single-phase AC power line voltage, and (ii) being operative to provide a substantially constant-magnitude DC supply voltage between a negative and a positive DC supply terminal; a first capacitor being connected between the negative DC supply terminal and a reference terminal; a second capacitor being connected between the positive DC supply terminal and the reference terminal;

a second sub-circuit including an inductor means having a first inductor winding and a second inductor winding;

a gas discharge lamp; and

a third sub-circuit circuit having: (i) a first [B-] terminal and a second [B+] terminal connected with the negative and the positive DC supply terminals by way of the first and the second inductor windings; (ii) structure sufficient to cause a unidirectional voltage to exist [existing] between the first [B-] terminal and the second [B+] terminal; (iii) structure sufficient to cause the average magnitude of the unidirectional voltage to be [being] substantially equal to that of the DC supply voltage; (iv) a pair of transistors series-connected between the first [B-] terminal and the second [B+] terminal; (v) the pair of transistors connected together at a joint terminal; (vi) structure sufficient to cause a substantially sinusoidal AC voltage to exist [existing] between the joint terminal and the reference terminal; and (vii) the gas discharge lamp connected in circuit with the joint terminal and the reference terminal.

35. The arrangement of claim 34 wherein the third sub-circuit is additionally characterized by including a tuned LC circuit connected with the joint terminal as well as with the reference terminal.

36. (Amended) The arrangement of claim 34 wherein the third sub-circuit is additionally characterized by including structure sufficient to cause it to constitute [constituting] an inverter circuit that is self-oscillating, by way of positive feedback, at the frequency of the substantially sinusoidal AC voltage.

37. (Amended) The arrangement of claim 34 wherein the first sub-circuit is additionally characterized in that: (i) it has an electrically conductive path [exists] between one of the DC supply terminals and one of the AC power input terminals; and (ii) it includes structure operative to cause the absolute magnitude of the DC supply voltage to be [is] distinctly larger than the peak absolute magnitude of the AC power line voltage.

38. (Amended) An arrangement comprising:

a first electronic assembly having AC power input terminals operable to connect with an AC power line voltage and, when indeed so connected, to provide a DC supply voltage of substantially constant magnitude between a pair of DC supply terminals; the first electronic assembly also having structure operative to cause the absolute magnitude of the DC supply voltage to be [being] distinctly higher than the absolute peak magnitude of the AC power line voltage;

a gas discharge lamp having lamp terminals; and

a second electronic assembly having: (i) DC input terminals connected with the DC supply terminals; and (ii) AC power output terminals connected with the lamp terminals, thereby being functional to supply the gas discharge lamp with an alternating lamp current of frequency substantially higher than that of the AC power line voltage.

cont. C4

39. (Amended) The arrangement of claim 38 wherein the first assembly is additionally characterized by including structure functional, [in that,] at least periodically, to cause an electrically conductive path to exist [exists] between one of the DC supply terminals and one of the AC power input terminals.

40. (Amended) The arrangement of claim 38 wherein the second assembly is additionally characterized by including a transistor as well as other structure connected with the DC input terminals in such manner as to cause the transistor to be subjected to a voltage of peak absolute magnitude in excess of the peak absolute magnitude of the AC power line voltage; the transistor alternating, at a frequency equal to that of the lamp current, between being conductive and being non-conductive.

41. (Amended) The arrangement of claim 38 wherein the second assembly includes at least one periodically conducting semiconductor, but does not include [is additionally characterized by not including] a periodically conducting thyristor.

42. (Amended) The arrangement of claim 38 wherein the second assembly is additionally characterized by having structure sufficient to cause it to draw [drawing] a unidirectional current from the DC supply terminals by way of an inductor means.

Cont. C4

43. (Amended) The arrangement of claim 42 wherein the second assembly is yet additionally characterized by including: (i) a pair of transistors, (ii) structure sufficient to cause the transistors to conduct in an alternating manner, [a pair of alternatingly conducting transistors,] and (iii) a parallel-tuned LC circuit; the alternatingly conducting transistors being operative to convert the unidirectional current to a alternating current; which alternating current is then being supplied to the parallel-tuned LC circuit.

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44. An arrangement comprising:

a first electronic assembly having AC power input terminals operable to connect with an AC power line voltage and, when indeed so connected, to provide a DC supply voltage of substantially constant magnitude between a pair of DC supply terminals;

a gas discharge lamp having lamp terminals; and

a second electronic assembly having: (i) DC input terminals connected with the DC supply terminals; (ii) a pair of transistors connected together at a junction terminal; (iii) a pair of output terminals; (iv) structure sufficient to cause (a) the transistors to conduct alternatingly, (b) to cause a first substantially sinusoidal voltage to exist between the junction terminal and one of the DC supply terminals, and (c) to cause a second substantially sinusoidal voltage to exist between the output terminals; and (v) sub-circuitry connected between the output terminals and the lamp terminals, thereby to provide power to the gas discharge lamp.

C5

45. The arrangement of claim 44 further characterized in that the two transistors are series-connected between a first terminal and a second terminal.

46. An arrangement comprising:

a first electronic assembly having AC power input terminals connected with an AC power line voltage and being functional to provide a DC supply voltage between a negative DC supply terminal and a positive DC supply terminal;

a gas discharge lamp having lamp terminals; and

a second electronic assembly having:

(i) DC input terminals connected with the DC supply terminals;

(ii) a pair of transistors connected together at a junction terminal;

(iii) a pair of output terminals;

(iv) structure operative (a) to connect the transistors in circuit with the DC input terminals, (b) to cause the transistors to conduct alternatingly, (c) to cause a substantially sinusoidal voltage to exist between the junction terminal and one of the DC supply terminals, and (d) to cause a substantially sinusoidal voltage to exist between the output terminals; and

(v) sub-structure connected between the output terminals and the lamp terminals, thereby to provide power to the gas discharge lamp.